

A NEW SPECIES OF *SCHIZOCOSA* FROM THE SOUTHEASTERN USA (ARANEAE, LYCOSIDAE)

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ABSTRACT. A new species of *Schizocosa* (Araneae, Lycosidae) is described and illustrated. *Schizocosa uetzi* new species is locally abundant in the southeastern USA and is mature during June and July. Morphological characters, coloration and courtship behavior separating this new species from its closely related congeners are noted.

Members of the wolf spider genus *Schizocosa* Chamberlin 1904 from the Nearctic Region were last revised by Dondale & Redner (1978). Since that time, two additional species have been described from the region by Uetz & Dondale (1979) and Stratton (1991). Within the genus there are at least two species groups that appear to be diverging by secondary sexual characteristics and by courtship behavior. The group best studied so far is the *Schizocosa ocreata* species group, defined by the presence of a finger-like palpal process on the male's palp and by paired excavations on the transverse piece of the female's epigynum. The group includes *S. ocreata* (Hentz 1844), *S. crassipes* (Walckenaer 1837), *S. floridana* Bryant 1934, *S. rovneri* Uetz & Dondale 1979, *S. stridulans* Stratton 1991 and *S. uetzi* new species. Uetz & Dondale (1979) described *S. rovneri* as the sister group to *S. ocreata*, the two differing only in the presence (in *ocreata*) or absence of the distinctive tibial bristles found on the first pair of legs; they are otherwise identical. Uetz & Denterlein (1979) described the courtship behavior of *S. rovneri* and demonstrated that courtship behavior serves as an isolating mechanism between *S. ocreata* and *S. rovneri*. This species and *S. stridulans* were first recognized as new species by differences in male secondary sexual characteristics (lack of pigment on tibia of males of *S. rovneri*, pigment but not bristles found on the tibia and distal portion of the femora in males of *S. stridulans*); and later, the courtship behavior in each was found to be distinct and to function as an isolating mechanism (Uetz & Denterlein 1979; Stratton

1991; in press). *Schizocosa uetzi* new species was first noted from collections from the southeastern USA made by W.P. Maddison in 1984 and by the author and L. Williams in 1985. In each case, specimens were collected that keyed to *S. ocreata*, but secondary sexual characteristics did not match any of the known species. Subsequent work demonstrated that this species has a consistent pattern of secondary sexual characteristics and distinctive courtship behaviors.

METHODS

Wolf spiders were collected throughout the southeastern USA during the springs and summers of 1991-1995. Immature and mature individuals were returned to the laboratory at the University of Mississippi where they were individually maintained in vials (8.5 cm × 5 cm) with wicks that extended into a water tray providing a constant source of moisture. Immature spiders were held until they matured, and mature spiders were held for behavioral studies. Appropriately-sized crickets were offered twice weekly as food for the spiders. Temperature in the laboratory ranged from 22-25 °C. Temperature during courtship and copulatory studies was 22-25 °C. Spiders were exposed to an L:D schedule of 14:10 h. Animals for behavioral studies were observed from within a few days to a few weeks of collection.

Courtship and copulation were observed by setting the female in a culture dish with a piece of filter paper 6-12 h before observations. Males and females were then placed in an observation chamber with the filter paper

where their interactions were videotaped using a Panasonic HD-5000 videocamera with a 105 mm macrolens. Sounds were recorded from the substrate by a stereo-needle transducer attached to an EG&G PARC, Model 113, preamp (Gain set at 5K, low roll off set at 0.3 Hz, high roll off at 10 kHz) and were overlaid onto videotape. Both courtship behaviors and copulatory behaviors were videorecorded.

Measurements were made of mature specimens (males, $n = 22$; females, $n = 8$) with an ocular micrometer. Terminology is as used in Dondale & Redner (1978) and Stratton (1991). The following abbreviations are used for collectors and for museum depositions: GES = Gail E. Stratton, PRM = Patricia R. Miller, GLM = Gary L. Miller, WRM = William Miller, GTB = Gerry Baker, EAH = Eileen Hebets, WG = Wendy Garrison, KW = Kimball White, LLW = Lisa Williams, WPM = Wayne Maddison, TS = Terry Schiefer, ME = Micky Eubanks, KB = Kari Benson. Museums: National Museum of Natural History Smithsonian Institution (USNM); American Museum of Natural History (AMNH); California Academy of Science (CAS); Mississippi Entomological Museum (MEM); Museum of Comparative Zoology (MCZ); Florida State Collection of Arthropods (FSCA); Biosystematics Research Institute, Canada (BRI); Field Museum of Natural History (FMNH). Specimens in the collection of the author are held at the University of Mississippi (UM).

Schizocosa uetzi new species

Figs. 1–6

Holotype.—Male from USA, Mississippi, Lafayette County, 8 mi SE Oxford, T10S R3W Sec. 35; 34°36'N, 89°29'W; 10 June 1991 (G. Stratton, P.R. Miller, G.L. Miller, W.R. Miller, M. Eubanks), Illustrated specimen. Collection #91–14; night, mixed pine, hardwood. Deposited in USNM.

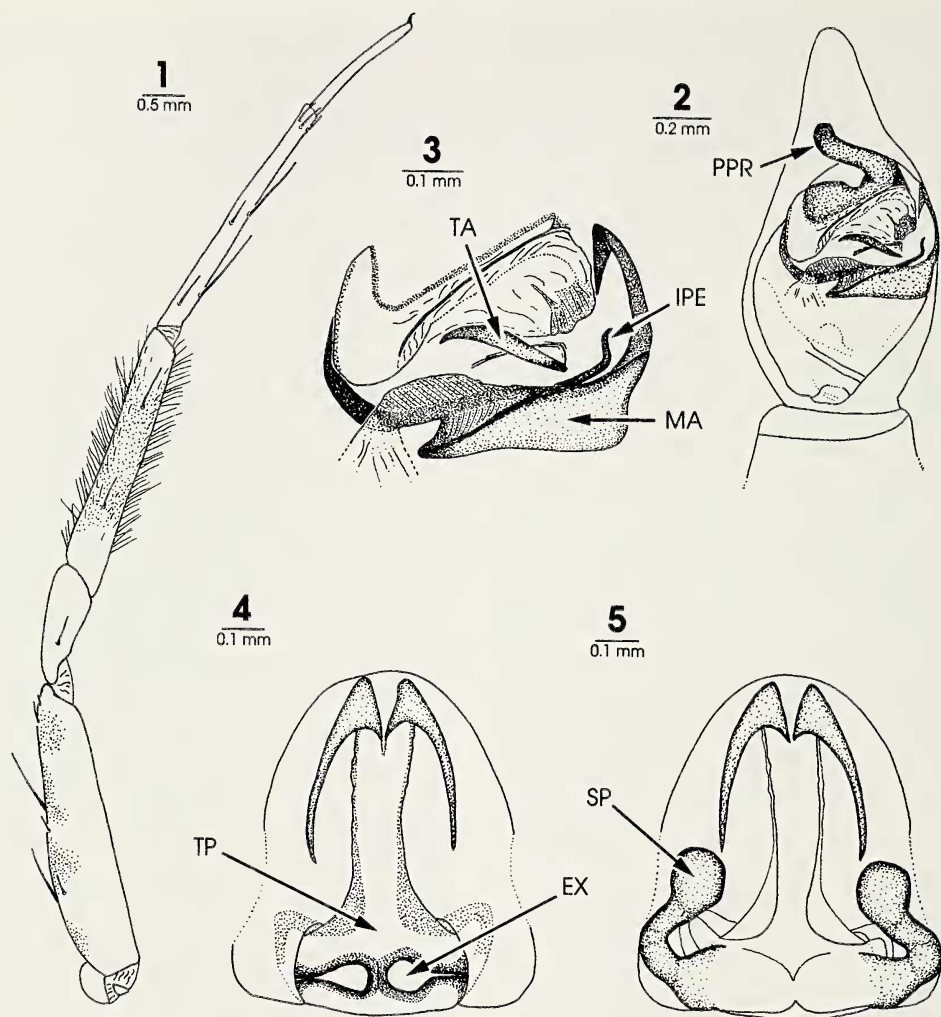
Paratypes.—MISSISSIPPI: *Lafayette County*, 8 mi SE Oxford, "Lonesome 80", T10S R3W Sec. 35; 34°36'N, 89°29'W; mixed pine hardwood, 1♀, 10 June 1991 (G. Stratton, P.R. Miller, G.L. Miller, W.R. Miller, M. Eubanks), night, mixed pine hardwood (USNM); 2♂ (MEM); 2♂ (AMNH); 2♂ (FMNH); 2♂ (MCZ); 2♂ (CAS); 2♂ (BRI); 2♂ (FSCA). 28 June–5 July 1993, 2♂ (USNM). LOUISIANA: *Natchitoches Parish*,

Kisatchie National Forest, "Red Dirt Area," 10♂, coll. 23 May 1993, matured 7–25 June (GES, PRM) (UM), 8♀, matured 6 June–27 June (UM).

Etymology.—The specific epithet is to honor Dr. George W. Uetz, spider ecologist, educator, mentor and friend.

Diagnosis.—Males of *Schizocosa uetzi* new species possess a finger-like process on the palea of the palp as all other members of the *ocreata* group (Fig. 1; see also Dondale & Redner 1978, figs. 1–3; Stratton 1991, figs. 1–4). *S. uetzi* can be distinguished from *ocreata* and *crassipes* by absence of a dense tibial brush, from *rovneri* by having patella and tibia I darker than the femur, and from *stridulans* in lacking a dark line on femur I and pigment on distal end of femur. *Schizocosa uetzi* is slightly, but significantly, larger than *S. stridulans* in total length, carapace length and carapace width ($P < 0.5$; t -test) (Table 1) and although it is not significantly different in size from *S. rovneri* (Table 1), *S. uetzi* has longer legs relative to its body size than *S. rovneri* ($P < 0.5$; t -test) (Table 2). Table 3 summarizes the differences in genitalic dimensions between these species. *Schizocosa uetzi* would probably not be confused with *S. floridana*, another member of this species group, as *S. floridana* is limited to Florida and has an undulating median band on the carapace that is different from all other members of this species group (Table 3). Females of *S. uetzi* new species can be confidently placed in the *ocreata* species group by the presence of paired excavations on the transverse piece of the epigynum. However, the specific determination can only be made when either *S. uetzi* new species is the only species in the *ocreata* group present in a habitat, or when a female is collected *in copula* with a male of *S. uetzi*. A key to adult males in the *S. ocreata* species group is provided.

Description.—*Males*: (Figs. 1–3) ($n = 22$). For measurements see Table 1 (body length) and Table 2 (leg length). Cephalothorax brown; submarginal band narrow but distinct and wavy, sometimes with three spots on lateral sides; pale median band as wide as posterior lateral eyes with slight indentation at posterior one-third of the band. Sternum yellow-brown to light brown with no spots, always darker than coxae. Chelicerae brown, setaceous, with two dark stripes down anterior



Figures 1-5.—Leg I of male and genitalia of males and females of *Schizocosa uetzi* new species (male holotype; female paratype). 1. Leg I of mature male; 2. Ventral aspect of left palp; 3. Enlargement of palp; 4. External aspect of epigynum of female; 5. Internal aspect of epigynum of female. IPE = intromittent portion of embolus; MA = median apophysis; TA = terminal apophysis, PPR = paleal process; MS = median septum; TP = transverse piece; EX = excavation of transverse piece; SP = spermatheca.

side. Promargin of fang furrow with three unevenly-sized teeth; retromargin of fang furrow with three evenly-sized teeth. Femora I-IV yellow to light brown with 3-4 dark annulations. Patellae I-IV brown. Tibia I brown to dark brown with black hairs, always slightly but distinctly darker than tibiae II-IV, always darker than femora I (Fig. 1), sometimes with faint annulations. Tibiae II-IV yellow to light brown. Tibial length to width ratio larger for males than females (Table 2). Dorsum of abdomen in most specimens (16 of 21 specimens) with faint heart mark and with spots.

Venter of abdomen yellow with black spots. Population from Louisiana, Natchitoches Parish, with dark square of pigment near genital pore (6 of 6 specimens). Palpal cymbium with 7-13 terminal macrosetae. Palpal palea (PPR) with long distal process, sometimes slightly curved into an *s*-shape (Fig. 2). Median apophysis (MA) with distal margin convex. Intromittent part of embolus (IPE) slender, pointed with slight curve (Fig. 3). Terminal apophysis (TA) with thickened margin extending to base of IPE. Length of palp, cymbium and paleal process given in Table 3. File

Table 1.—Comparison of total length, cephalothorax length and cephalothorax width of *Schizocosa uetzi* new species, *S. rovneri* (measurements of males from collections of GES; females from Uetz & Dondale 1979) and *S. stridulans* (data from Stratton 1991). Measurements are in mm, means are \pm SD. Males are from type locality ($n = 16$) and from LA, Natchitoches Parish ($n = 6$); females from Natchitoches Parish ($n = 8$). For any one characteristic measured, significant differences are indicated by different letters. Measurements that are followed by the same letter are not significantly different from each other (Students' t -test, two tailed, $P < 0.05$).

	<i>Schizocosa uetzi</i>	<i>Schizocosa stridulans</i>	<i>Schizocosa rovneri</i>
Males			
Total length (mean)	7.16 \pm 0.58 A	6.40 \pm 0.43 B	6.78 \pm 0.65 A
(range)	5.9–8.0	5.04–6.80	6.0–7.8
Cephalothorax length (mean)	3.59 \pm 0.25 C	3.25 \pm 0.33 D	3.6 \pm 0.31 C
(range)	3.2–4.2	2.47–3.80	3.2–4.0
Cephalothorax width (mean)	2.75 \pm 0.18 E	2.56 \pm 0.24 F	2.75 \pm 0.16 E
(range)	2.4–3.2	2.04–3.10	2.6–3.0
Sample size	22	51	9
Females			
Total length (mean)	9.5 \pm 0.7 G	8.09 \pm 1.21 H	7.3–10.4
(range)	8.6–10.6		
Cephalothorax length (mean)	4.0 \pm 0.1 I	3.5 \pm 0.4 J	4.0 \pm 0.43
(range)	3.8–4.2		
Cephalothorax width (mean)	3.0 \pm 0.2 K	2.68 \pm 0.35 L	3.02 \pm 0.31
(range)	2.6–3.2		
Sample size	8	61	7

of stridulatory organ at embolus base, scraper on distal tip of palpal tibia.

Females: (Figs. 4, 5) ($n = 8$). Total length, cephalothorax length and width in Table 1. Females slightly larger than males. Cephalothorax brown, submarginal band narrow, distinct and wavy, pale median band as wide as posterior lateral eyes with slight indentation at posterior one third of band. Sternum brown to light brown with no spots, always darker than yellow coxae. Chelicerae brown, setaceous,

with two dark stripes down anterior side. Fang furrow as in male. Femora I–IV yellow and annulated, patellae and tibiae light brown with annulations sometimes present on tibiae. Leg segment lengths similar to male lengths (Table 2) except tibia and metatarsus shorter in female. Abdominal dorsum with heart mark, either distinct or faint (faint in 4 of 9 specimens), and chevrons. Abdominal venter yellow with black spots. Epigynum with excavations on transverse piece (Fig. 4); exca-

Table 2.—Comparison of length of segments of leg I in males ($n = 21$) and females ($n = 8$) of *Schizocosa uetzi* new species and males ($n = 9$) of *Schizocosa rovneri*. Measurements are in mm and means are \pm SD.

	<i>Schizocosa uetzi</i> new species		<i>Schizocosa rovneri</i>
	Females	Males	Males
Femur	3.3 \pm 0.2	3.56 \pm 0.24	2.74 \pm 0.96
Patella	1.6 \pm 0.1	1.51 \pm 0.12	1.36 \pm 0.25
Tibia	2.7 \pm 0.1	3.23 \pm 0.23	2.63 \pm 0.48
Metatarsus	2.6 \pm 0.2	3.11 \pm 0.75	2.59 \pm 0.43
Tarsus	1.5 \pm 0.1	1.66 \pm 0.12	1.49 \pm 0.26
Tibial width	0.5 \pm 0	0.40 \pm 0.1	0.40 \pm 0.1
Ratio tibial length to width	5.4	8.1	6.6

Table 3.—Measurements of palps ($n = 22$) and epigyna ($n = 8$) of *Schizocosa uetzi* new species. Measurements are in mm and are given as means \pm SD.

Male	
Palp length	1.22 \pm 0.33
Cymbium length	0.77 \pm 0.15
Cymbium width	0.61 \pm 0.06
Paleal process	0.42 \pm 0.06
Female	
Total epigynal length	0.8 \pm 0
Depth of hood	0.1 \pm 0
Width, transverse piece	
widest part	0.7 \pm 0.1
Width, longitudinal piece	0.2 \pm 0.1
Height of excavation	0.1 \pm 0

vations (EX) usually triangular in shape, slightly asymmetrical, nearly meeting at midline. Longitudinal piece sometimes narrowing anteriorly (4 of 9 specimens) or sides parallel (as in Fig. 4; 5 of 9) or narrowing slightly at midline. Spermathecae (SP) ovoid and smooth (Fig. 5).

Courtship behavior.—The courtship behavior of this species involves distinctive movements on the part of both the males and the females. The following descriptions are based on videotaped courtships of five courting pairs from Lafayette County, Mississippi; and three pairs from Natchitoches Parish, Louisiana. Males show chemoexploratory behavior similar to that seen in other lycosids (Tietjen 1979) including *S. ocreata*, *S. rovneri*, (Uetz & Denterlein 1979) and *S. stridulans* (Stratton 1991), wherein the male ex-

Table 4.—Secondary sexual characteristics and courtship behavior, characteristics most useful in separating members of the *Schizocosa ocreata* species group that may be confused with *Schizocosa uetzi* new species (Dondale & Redner 1978; Uetz & Dondale 1979; Stratton 1991).

Species	Distinguishing features
<i>uetzi</i> new species	Secondary sexual characteristics: Males have some pigmentation on tibia and sparse hairs on tibia; tibia and patella I always slightly darker than femur I. Courtship behavior: Pulses of stridulation.
<i>rovneri</i>	Secondary sexual characteristics: Lacking, mature males lack bristles or conspicuous pigmentation on legs I. Tibiae I same color as femur of leg I. Courtship behavior: Body slams or "bounces" producing clear and distinct sounds (Uetz & Denterlein 1979).
<i>stridulans</i>	Secondary sexual characteristics: Males have black pigmentation on the tibia of legs I and halfway up the femur. Courtship behavior: Pulses of stridulation interspersed with tapping first pair of legs (Stratton 1991, in press).
<i>floridana</i>	Secondary sexual characteristics: Legs I of mature male are slightly darker than other legs. Courtship behavior: Pulses that begin with two abdominal dips (producing a "squeaking" sound), followed by two pulses of stridulation, followed by two taps with the front legs. Other characters: Pale submarginal band of cephalothorax broken into three semicircular patches that "break out" at carapace margins. Pale median band with undulating margins. Geographic distribution: limited to northern Florida and southern Georgia.
<i>crassipes</i>	Secondary sexual characteristics: Bristles on tibia of legs I black and dense. Courtship behavior: Behavior includes arch, extension and wave of legs I (Miller et al., in press).
<i>ocreata</i>	Secondary sexual characteristics: Bristles on tibia and metatarsus of legs I black and dense, bristles often extending to the basal portion of the tarsus. Courtship behavior: Active courtship involving extensive walking plus tapping and arching of legs I.

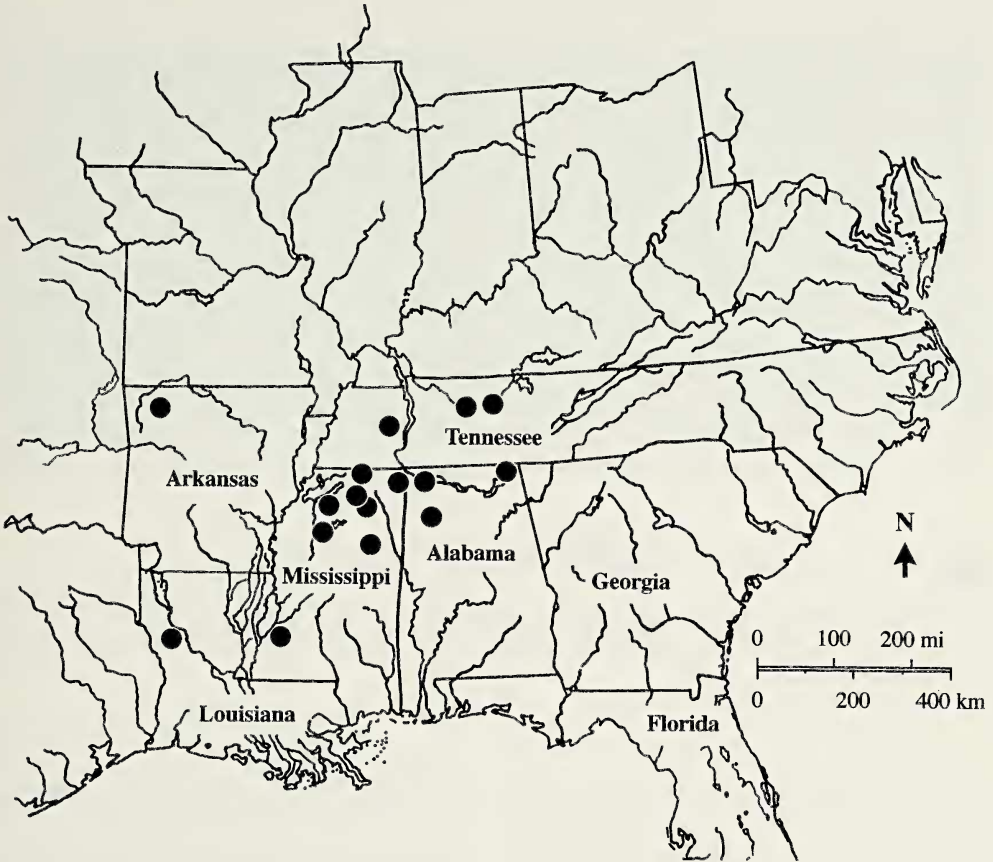


Figure 6.—Distribution of *Schizocosa uetzi* new species.

plores the substrate with the dorsal surface of his palp. Following chemoexploration, the male of *S. uetzi* new species typically performs several episodes of stridulation. In this behavior, the male assumes a stance with the body raised slightly from the substrate and stridulates by slight movements of the palps which are held nearly perpendicular to the substrate. The behavior is similar to that of *S. stridulans*, but there is no quick tapping of legs I as is seen with *S. stridulans* (Stratton 1991; Stratton in press).

Females show a distinctive abdomen dip that occurs in the midst of male courtship. There was no sound recorded with the movement, and it was seen only in animals that eventually mated.

Copulatory behaviors were very similar to the behaviors seen in *S. ocreata*, *S. crassipes*, *S. rovnieri*, and *S. stridulans*. Males mounted so that the male's sternum was against the dorsal surface of the female's abdomen. The

male scraped his palp along the side of the female's abdomen; she rotated her abdomen and his palp engaged her epigynum. There was a single expansion of the hematodocha, the palp disengaged, and the male then re-engaged the palp with another expansion of the hematodocha. After many engagements, he switched sides and repeated the sequence on the other side (Stratton et al. 1996). The durations for four copulations were 90 min, 115 min, 115 min, and 130 min.

Geographic distribution, phenology and habitat.—*Schizocosa uetzi* new species has been collected from states throughout the mid-south region of the USA (Fig. 6). The species is the most common mid-sized wolf spider in June and July in northern Mississippi and northern Alabama; and it has been collected from Tennessee, western Arkansas and Louisiana. A single individual, collected from South Carolina, had a maturation time consistent with this new species. Except for this sin-

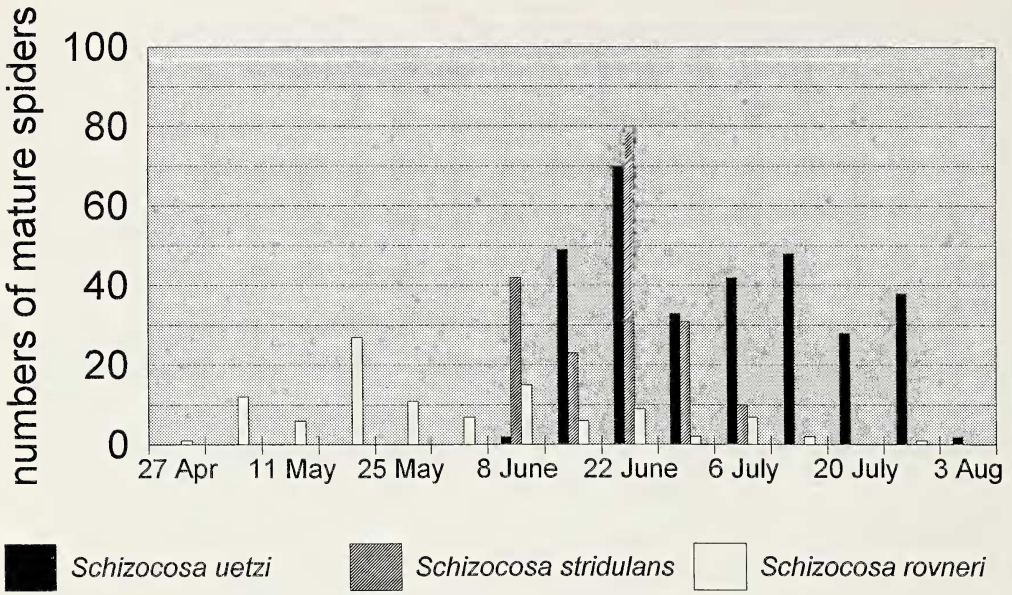


Figure 7.—Comparison of times of maturity of *Schizocosa uetzi* new species, *Schizocosa stridulans* and *Schizocosa rovneri* males in the southeastern USA, collections from 1991–1995. All individuals were caught by hand or pitfalls as adults.

gle male, all populations are from west of the Appalachian Mountains. Extensive wolf spider collections have not yielded specimens of *S. uetzi* new species from Florida.

Mature males have been collected from 7 June–2 August. There is broad overlap in phenology with *S. stridulans* (Fig. 7). Both *S. rovneri* and the brush-legged species *S. crassipes* occur much earlier in the season (Figs. 7, 8). In a year-long pitfall study in Grenada County, Mississippi, there was almost no overlap between *S. uetzi* new species and *S. crassipes* when the phenology of mature males was compared (Fig. 8).

In Mississippi, Tennessee, Arkansas and Louisiana, *S. uetzi* new species has consistently been found in upland deciduous leaf litter or upland deciduous litter mixed with pine litter. *Schizocosa uetzi* new species has frequently been collected with *S. stridulans* and shows broad geographic overlap with that species (Fig. 6, compare to fig. 14 in Stratton 1991) as well as overlap of habitat and phenology (Fig. 7). When *S. uetzi* new species and *S. stridulans* are collected together, *S. uetzi* is slightly but significantly larger (as seen in Mississippi, Lafayette County, “Bailey’s Woods”, 15 June 1993; Student’s *t*-test, $t =$

5.91, 5.55, 6.48, $P < 0.001$ for cephalothorax width, length and tibial length).

Additional material.—The following material was collected and identified as *Schizocosa uetzi* new species. **ALABAMA:** *Jackson County:* nr Russell Cave Natl. Monument, 1♂, day, 19 June 1992 (GES); *Lauderdale County:* Uplands of Tennessee River, West of Florence, 4♂, 18 June 1984, (GES, LLW); *Winston County:* W.B. Bankhead Natl. Forest at Natural Bridge, Winston County Rd. #63 N of Houston, deciduous woods nr ravine, 8♂, night, 18 June 1992 (GES); Houston Campground, 2♂, night, 18 June 1992 (GES). **ARKANSAS:** *Logan County:* Mt. Magazine, Mossback Ridge, South Slope, 1♂, pitfall, 23 June 1990 (B. Leary); Mossback Ridge, North Slope, 3♂, pitfall, 20 July 1990 (B. Leary). **MISSISSIPPI:** *Claiborne County:* Rocky Springs Park, 1♂, coll. 17 May 1983, matured in June (WPM); uplands woods about 10 mi S. of Vicksburg, 2♂, coll. 20 May 1993, matured 14 June (GES, PRM). *Grenada County:* T21N R2E, Sec. 12, 13N, & R3E, Sec. 7S, 18N, 14♂, pitfall in deciduous woods, 5–11 June 1991 (PRM, GES, GTB); 3♂, day, 11 June 1991 (PRM, GES, TS, GTB); 15♂, 19–25 June (GTB); 21♂, 26 June–2 July 1991 (PRM, GTB); pitfall on sandbar of creek, 12♂, 26 June–2 July 1991 (PRM, GTB); deciduous woods, 5♂, night, 26 June 1991 (PRM, KB); pitfall deciduous woods, 10♂, 3–9 July 1991 (PRM); 2♂, 10–16

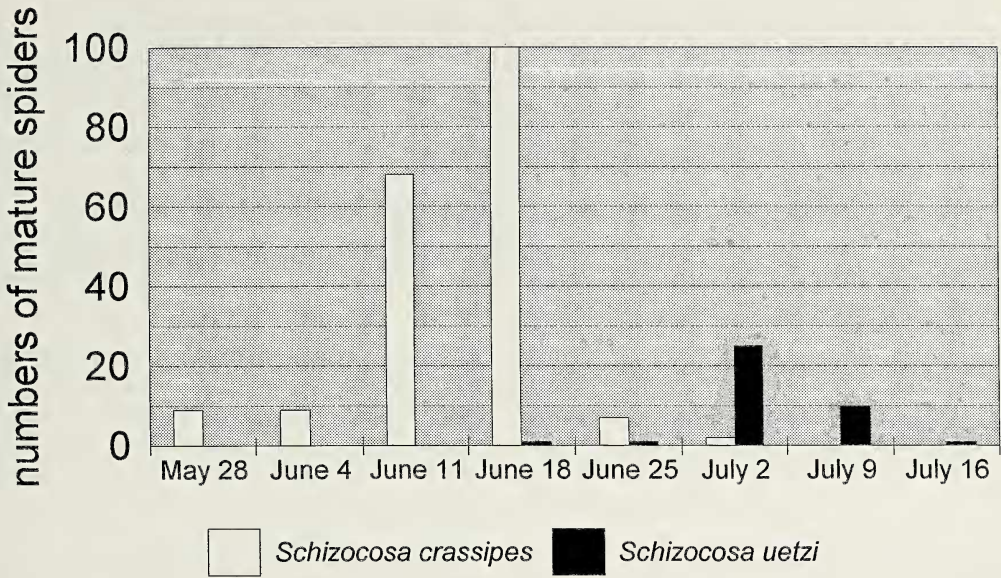


Figure 8.—Comparison of occurrence of mature males of *Schizocosa uetzi* new species and mature males of *Schizocosa crassipes* from a pitfall study in Grenada County, Mississippi in 1991.

July 1991 (PRM, GTB); 2♂, 17–23 July 1991 (PRM, GTB); 1♂, 26 July 1993 (GES, PRM, EAH, KW); 8♂, coll. 21 May 1994, matured in lab 10, 13, 23 June 1994 (GES, PRM); T22N R3E, Sec. 31NW, pitfall deciduous woods, 12♂, 19–25 June 1991 (PRM); 1♂, 10–16 July 1991 (GTB, PRM); deciduous woods by ravine, 1♂, 12 June 1991 (GES, PRM, TS, GTB). *Lafayette County*: Oxford, 1♂, 15 June 1984 (P.K. Lago); Old Taylor Rd., 2♂, 11 June 1991 (PRM, GES); 4♂, 2♀, night, 15 June 1991 (PRM, GES); deciduous woods, 3♂, night, 15 June 1993 (PRM, GES, EAH); Puskus Lake, 13 mi NE Oxford, 8♂, 11 June 1991 (PRM, WRM, GES); 3♂, 21 July 1993 (GES, PRM, EAH, KW); 2 mi NW Oxford, deciduous leaf litter, 1♂ 1♀, night, 30 June 1991 (PRM); Clear Creek Rec. Area, 2♂, night, 17 June 1992 (GES); Bailey's Woods, 12♂, night, 15 June 1993 (GES, PRM, GLM, EAH, WG, Young Scholars); 1♂, day, 15 June 1993 (EAH, KW); 10♂, night (EAH, GLM, WG); 8 mi SE Oxford, T10S R3W Sec.35; 34°36'N, 89°29'W, mixed pine and hardwood, "Lonesome 80," 19♂, night, 10 June 1991 (GES, PRM, GLM, WRM, ME); 1♂, coll. 25 May 1992 (GES), spider sacrificed, 18 June 1992 (GES); rocky exposed hillside, 1♂, night, 15 June 1992 (GES); 2♂, 1 July 1992 (PRM, GES); 1♂, night, 4 July 1992 (GES); 3♂, 4 July 1992 (GES); day on hill by small lake, 4♂, 23 June 1993 (GES, EAH, KW); 4♂, night, 1 July 1993 (GES, EAH, PRM); pitfalls from 26 May, 1992 to July 1993, 9♂, 3–10 June 1992 (GES, PRM); 5♂, 16–24 June 1992, 6♂, 24 June–1 July 1992, 17♂, 1–8 July 1992, 12♂, 8–15 July 1992, 14♂, 15–22 July

1992, 2♂, 22–29 July 1992, 4♂, 10–20 June 1993, 2♂, 20–28 June 1993, 14♂, 28 June–5 July 1993, 12♂, 5–12 July 1993, 14♂, 12–21 July 1993 (GES, PRM). *Marshall County*: Wall Doxey State Park, T5S R3W Sect. 12, 89°24'W, 34°40'N, edge of deciduous woods, 1♂, coll. 23 May 1992, molted 14 June (GES, PRM); nr. lake, 2♂, 13 June 1991 (PRM, GES); nr. entrance to park, pine litter, 14♂, 1 pr. ♂ & ♀, night, 13 June 1991. *Panola County*: Sandstone Nature Trail nr Sardis Dam, in uplands on ridge, 13♂, night, 13 July 1993 (GES, PRM, EAH). *Pontotoc County*: 1 mi SE Ecru, pitfall in deciduous woods, (4743-3,4), 2♂, 5 June 1980 (PRM); Natchez Trace Parkway, 1♂ in poor condition, kept in lab, 17 May 1983, 83–466 (WPM). *Tishomingo County*: Tishomingo St. Park, 3♂, 21 June 1991 (GES, PRM). *J.P. Coleman State Park*, oak pine woods along slope of a ravine, 2♂ 1♀, 24 June 1986 (GES). **TENNESSEE**: *Cumberland County*: Cumberland Mnt. State Park, deciduous woods, 1♂, night, 28 June 1983 (PRM). *Dixon County*: Montgomery Bell St. Park, uplands, oak-pine woods, 1♂, day, 29 June 1992 (GES). *Henderson County*: Natchez Trace St. Park, Fairview Gully's Trail nr. I-40, oak-pine litter, 3♂, day, 29 June 1992 (GES). *Marion County*: Foster Falls Wild Area of S. Cumberland St. Rec. Area, 10 mi S. of Tracey City, 3♂, 19 June 1992 (GES). *Shelby County*: Meeman Shelby State Park, uplands deciduous, at edge of woods, 3♂, 15 July 1996 (E. Grey, D. Wells, GES, PRM). *Wilson County*: Cedars of Lebanon State Park, Cedar Forest Loop Trail, hickory, oak, scattered cedar, 2♂, 15 May 1993 (GLM).

KEY TO MATURE MALES IN THE *SCHIZOCOSA OCREATA* GROUP

- 1a. Males with thick brush of black bristles on tibia of legs I, sometimes extending to the basal region of the tarsus (thickness of bristles makes it difficult to see tibia); apparent width of tibia (with bristles) from lateral view more than twice width of tibia alone 2
- 1b. Males lacking thick brush of black bristles on tibia of legs I; may have some dark pigmentation or some dark hairs or may lack hairs and pigmentation on legs I 3
- 2a. Paleal process with rugose prominence on retrolateral side (see Dondale & Redner 1978, Fig. 1; also Stratton 1991); tibial bristles extending to basal region of tarsus *ocreata*
- 2b. Paleal process with smooth prominence along its retrolateral side (see Dondale & Redner 1978, Fig. 2; also Stratton 1991); bristles on tibia only *crassipes*
- 3a. Males with dark pigmentation on tibia of legs I 4
- 3b. Males lacking pigmentation on tibia and on femora 5
- 4a. Males with dark pigmentation on tibia and on distal portion of femur *stridulans*
- 4b. Males with pigmentation on tibia of legs I such that tibia is slightly darker than femur *uetzi* new species
- 5a. Pale median band on cephalothorax with edges parallel *rovneri*
- 5b. Pale median band on cephalothorax with edges scalloped *floridana*

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LITERATURE CITED

Dondale, C.D. & J.H. Redner. 1978. Revision of the Nearctic wolf spider genus *Schizocosa* (Araneida: Lycosidae). Canadian Entomol., 110: 143-181.

Miller, G.L., G.E. Stratton, P.R. Miller & E.A. Hebets. In press. Geographic variation in male courtship behavior and sexual isolation in wolf spiders of the genus *Schizocosa* (Araneae; Lycosidae). Anim. Behav.

Stratton, G.E. 1991. *Schizocosa stridulans* (Araneae: Lycosidae) a new species of wolf spider. J. Arachnol., 18:29-39.

Stratton, G.E., P.R. Miller, E.A. Hebets & G.L. Miller. 1996. Pattern and duration of copulation in wolf spiders (Araneae, Lycosidae). J. Arachnol., 24:186-200.

Stratton, G.E. In press. Investigation of species divergence and reproductive isolation of *Schizocosa stridulans* (Araneae, Lycosidae) from Illinois. Bull. British Arachnol. Soc.

Tietjen, W.J. 1979. Dragline following by male lycosid spiders. Psyche, 84:165-178.

Uetz, G.W. & G. Denterlein. 1979. Courtship behavior, habitat and reproductive isolation in *Schizocosa rovneri* Uetz & Dondale (Araneae: Lycosidae). J. Arachnol., 7:121-128.

Uetz, G.W. & C.D. Dondale. 1979. A new wolf spider in the genus *Schizocosa* (Araneae: Lycosidae) from Illinois. J. Arachnol., 7:86-87.

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